


# Specifying Style Dynamically

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## Objectives

- ▶ Understand Cascading Style Sheets
- ▶ Create an embedded style sheet
- ▶ Create a class
- ▶ Detect browsers
- ▶ Show and hide page elements
- ▶ Change font size dynamically
- ▶ Control font color dynamically
- ▶ Use an external style sheet

Cascading Style Sheets (CSS) and scripts form the foundation of DHTML. Whereas scripting allows the browser to alter the page, CSS lets you specify in detail how the page and its elements should appear. An understanding of CSS's simple syntax and organization opens the door to many new options for your Web pages' appearance.  Lydia is looking forward to adding new effects to the Nomad Ltd Web pages. First, she will look at CSS a bit more in depth, then she will use CSS to create an interactive page for her department.



# Understanding Cascading Style Sheets

With CSS, you can organize and expand the style attributes available in a Web page. CSS allows a Web page designer to easily specify attributes such as color, font size, and even position on the page for single objects or groups of objects, including text blocks, images, and all other DOM objects. CSS offers three different ways to specify style, which simplifies creating and changing Web page code.  As Lydia reviews how to implement CSS in her Web pages, she studies the three levels of style available.

## Details



### Inline style

Use **inline style** to take advantage of CSS's extended formatting options for a small text block or other object a single time in your document. You use inline style—the most basic level of using CSS—to specify your selected attributes in the opening tag surrounding the text itself, as shown in Figure J-1. This method allows you to specify a format different from all others on the page. However, formatting all page objects using inline style is impractical, given the amount of typing required.



### Embedded style

Use **embedded style** to simplify formatting multiple page elements. Figure J-2 shows the source for a page using embedded style. To create embedded styles, you associate style attributes with HTML tags between the HEAD tags at the top of your Web page, creating a set of HTML code known as an **embedded style sheet**. Then, any place in the Web page code where you use the tags specified in the embedded style sheet, the text or object is formatted automatically with that style. Embedded style rather than inline style is a more efficient way to format an entire Web page. However, you can specify inline styles in a page that uses embedded styles when you have single objects that need their own style or style adjustment. Each inline style supersedes the embedded style defined for the object where it is used.



### External style

Use **external style** to apply the global formatting of embedded style to multiple pages. External style allows you to specify formats and apply them to multiple Web pages rather than just one. External style also is known as **linked style** because, instead of listing style specifications at the top of your Web page, you create a link to an external document that contains the style code, known as an **external style sheet**. This method allows you to format a set of Web pages, such as a Web publication, with a uniform style and allows you to change the style for all pages later simply by editing the external style sheet. External style can be used in a page together with both inline and embedded styles. Just as inline style takes precedence over embedded style wherever you use it, embedded styles and inline styles both take precedence over external style. This system of precedence is known as **cascading**, and it gives CSS its name. Cascading allows you to apply a general format for a page or group of pages as well as to make local exceptions to the global style.

**FIGURE J-1: Web page containing inline style**

Inline style located  
in formatting tag

```
<LINK REL="stylesheet" HREF="nomadltd.css" TYPE="text/css">

<SCRIPT LANGUAGE="JavaScript">
<!--
NS4 = (document.layers) ? 1:0;
IE4 = (document.all) ? 1:0;
//-->
</SCRIPT>

<STYLE TYPE="text/css">
<!--
H1 {font-family: arial, sans-serif; font-size: 20pt}
H2 {font-family: "times new roman", times, serif; font-size: 14pt; font-
style: italic}
.question {font-family: "times new roman", times, serif; font-size: 12pt;
font-weight: bold}
//-->
</STYLE>

</HEAD>

<BODY BACKGROUND="Egg shell.jpg">
<DIV STYLE="font-color: navy; text-decoration:underline" ALIGN="center">
<H2>Frequently Asked Questions about</H2>
<H1>Dynamic HTML (DHTML)</H1></DIV>
```

**FIGURE J-2: Web page containing embedded style**

Embedded style  
sheet

```
<HTML>
<HEAD>
<TITLE>Nomad Ltd DHTML FAQ</TITLE>

<STYLE TYPE="text/css">
<!--
H1 {font-family: arial, sans-serif; font-size: 20pt; font-style: normal}
H2 {font-family: "times new roman", times, serif; font-size: 14pt; font-
style: italic}
//-->
</STYLE>

</HEAD>

<BODY BACKGROUND="Egg shell.jpg">
<DIV ALIGN="center"><IMG SRC="nomad.jpg" ALIGN="right">
<H2>Frequently Asked Questions about</H2>
<H1>Dynamic HTML (DHTML)</H1></DIV><BR>

<UL TYPE="disk">
<LI><DIV>What is Dynamic HTML?</DIV>

<DIV>Dynamic HTML (DHTML) describes a set of new technologies for designing
Web pages that allow new and more precise formatting features, along with
faster access for users.</DIV><BR>
```



### <DIV> vs. <SPAN>

Although it's often useful to assign CSS styles to standard formatting tags such as <H1> or <LI>, HTML includes two specialized tags that are especially valuable for CSS. Both the <DIV> and <SPAN> tags can enclose an element or group of elements, which allows you to specify a style for everything they contain. The <DIV> tagset always includes a line break before and after the enclosed elements, which creates a unit

divided from the surrounding page. The <SPAN> tagset does not include line breaks before or after, which causes its contents to flow with the objects surrounding them in the page. When formatting text, <DIV> is best for enclosing a paragraph or group of paragraphs, whereas <SPAN> allows you to create a special style for words or sentences within a paragraph.



# Creating an Embedded Style Sheet

An embedded style sheet consists of one or more lines of HTML code specifying style attributes, surrounded by tags marking the section as CSS style specifications. You can associate style attributes with any HTML structuring or formatting tag and then apply them to Web page elements simply by inserting the tags. After completing her basic research, Lydia decides to create a **FAQ** (which is an acronym for Frequently Asked Questions, pronounced “fak”) document about DHTML for her co-workers in Nomad Ltd’s information systems department. Lydia wants to take advantage of CSS to specify exactly how the page will appear in a user’s browser. Because she wants to create a uniform look for the page, she decides to create an embedded style sheet.

## Steps 1234

1. Start your text editor, open the file **HTML J-1.htm**, then save it as a text document with the filename **FAQ embedded style.htm**

This file contains the text of the FAQ Lydia is creating, along with basic HTML structuring tags. Lydia has enclosed each unit of text in opening and closing DIV tags to make it easy for her to add style attributes later.

2. Select the text **[replace with embedded style sheet]**, press **[Delete]**, type **<STYLE TYPE="text/css">** and press **[Enter]**, then type **<!--** and press **[Enter]**

Embedded style sheets are placed in the Web page’s head section, which allows the browser to incorporate the styles in the text it displays in the body section. A browser recognizes the code as an embedded style sheet from the beginning and ending **<STYLE>** tags. The **TYPE** property in the **STYLE** tag tells the browser the language and format of the style sheet it marks. In this case, the language is CSS, and the information is in text format. The **<!--** tag tells browsers that are not compatible with embedded style sheets to ignore this section.

3. Type **H1 {font-family: arial, sans-serif; font-size: 20pt; font-style: normal}** and press **[Enter]**

Lydia associates 20-point arial with the **<H1>** tag for use with the page’s main heading. By putting it first in a list of two, Lydia specifies arial as her font preference. Her second choice, sans-serif, instructs the user’s browser to use any sans-serif font if arial is not available.

### QuickTip

Font names composed of multiple words, such as *times new roman*, must be listed within quotation marks for a browser to recognize them as single names.

4. Type **H2 {font-family: "times new roman", times, serif; font-size: 14pt; font-style: italic}** and press **[Enter]**

Lydia has specified 14 point as the font size to associate with the **<H2>** tag, which is the subheading.

5. Type **//-->** and press **[Enter]**, then type **</STYLE>**

Figure J-3 shows the completed Web page source containing the style sheet.

6. Check the document for errors, make changes as necessary, then save **FAQ embedded style.htm** as a text document

7. Start your browser program, cancel any dialup activities, then open the file **FAQ embedded style.htm**

The Web page appears as shown in Figure J-4.

FIGURE J-3: Completed embedded style sheet

Opening and closing embedded style sheet tags

```
<HTML>
<HEAD>
<TITLE>Nomad Ltd DHTML FAQ</TITLE>

<STYLE TYPE="text/css">
<!--
H1 {font-family: arial, sans-serif; font-size: 20pt; font-style: normal}
H2 {font-family: "times new roman", times, serif; font-size: 14pt; font-
style: italic}
-->
</STYLE>

</HEAD>

<BODY BACKGROUND="Egg shell.jpg">
<DIV ALIGN="center"><IMG SRC="nomad.jpg" ALIGN="right">
<H2>Frequently Asked Questions about</H2>
<H1>Dynamic HTML (DHTML)</H1></DIV><BR>

<UL TYPE="disk">
<LI><DIV>What is Dynamic HTML?</DIV>

<DIV>Dynamic HTML (DHTML) describes a set of new technologies for designing
Web pages that allow new and more precise formatting features, along with
faster access for users.</DIV><BR>
```

Style specifications for heading tags

FIGURE J-4: Web page formatted with embedded style sheet

Text formatted with H2 style specified in embedded style sheet

Text formatted with H1 style specified in embedded style sheet

*Frequently Asked Questions about*

**Dynamic HTML (DHTML)**

**Nomad Ltd**

- What is Dynamic HTML?  
Dynamic HTML (DHTML) describes a set of new technologies for designing Web pages that allow new and more precise formatting features, along with faster access for users.
- Is DHTML a new language?  
DHTML is not a new language. DHTML is simply a snazzy name for a set of new features that recent Web browsers are equipped to interpret and use. DHTML features work only within the context of a standard HTML document.
- How does DHTML work?  
DHTML uses two new pieces in concert with HTML. The first is scripts that run on the user's browser, written in a scripting language such as JavaScript or VBScript. The other is Cascading Style Sheets, a new method of specifying exact styles for a Web page's elements



# Creating a Class

In addition to specifying style for all occurrences of a particular HTML tag, you also can name a set of style specifications and then associate, or **call**, this name in tags within your Web page. This named style, known as a **class**, allows you to format selected elements with an embedded style, without requiring that each element be enclosed in the same tag or that every occurrence of a certain tag display the same style. All class names begin with a period to mark them as classes. To apply a class to an element, you add the CLASS attribute to the element's opening HTML tag. Lydia's bulleted list is a series of questions and answers. Lydia wants to format the headings in her list, which are the questions, differently than the paragraph text, which are the answers. She creates a class that specifies the formatting for the questions and then calls the class within the opening <DIV> tag for each of the questions.

## Steps 1 2 3 4

1. Open the file **HTML J-2.htm** in your text editor, then save it as a text document with the filename **FAQ class.htm**
2. Select the text **[replace with class style]** in the embedded style sheet, then press **[Delete]**
3. Type **.question {font-family: "times new roman", times, serif; font-size: 12pt; font-weight: bold}** and press **[Enter]**  
The dot preceding the style name "question" indicates that the style specification is for a class.
4. Select the text **[replace with class]** in the <DIV> tag for the first question, then press **[Delete]**
5. Type **CLASS="question"**  
The tag now reads <DIV CLASS="question">. This calls the class and applies the style associated with the class "question" to this text, which is the first question in the FAQ.
6. Repeat Steps 4 and 5 for the remaining six questions  
Figure J-5 shows a portion of the completed source for the bulleted list.
7. Check your document for errors, make changes as necessary, then save **FAQ class.htm** as a text document
8. Click the browser program button on the taskbar, then open the file **FAQ class.htm**  
The Web page appears as shown in Figure J-6.

FIGURE J-5: Web page source using a class

Class definition  
inserted in  
embedded style  
sheet

```
H2 {font-family: "times new roman", times, serif; font-size: 14pt; font-  
style: italic}  
.question {font-family: "times new roman", times, serif; font-size: 12pt;  
font-weight: bold}  
/-->  
</STYLE>  
  
</HEAD>  
  
<BODY BACKGROUND="Egg shell.jpg">  
<DIV ALIGN="center"><IMG SRC="nomad.jpg" ALIGN="right">  
<H2>Frequently Asked Questions about</H2>  
<H1>Dynamic HTML (DHTML)</H1></DIV><BR>  
  
<UL TYPE="disk">  
<LI><DIV CLASS="question">What is Dynamic HTML?</DIV>  
  
<DIV>Dynamic HTML (DHTML) describes a set of new technologies for designing  
Web pages that allow new and more precise formatting features, along with  
faster access for users.</DIV><BR>  
  
<LI><DIV CLASS="question">Is DHTML a new language?</DIV>  
  
<DIV>DHTML is not a new language. DHTML is simply a snazzy name for a set of  
new features that recent Web browsers are equipped to interpret and use.  
DHTML features work only within the context of a standard HTML
```


Class question  
called in <DIV>  
tags

FIGURE J-6: Web page formatted with new class

Bold format added  
using class property

*Frequently Asked Questions about*

## Dynamic HTML (DHTML)



- **What is Dynamic HTML?**  
Dynamic HTML (DHTML) describes a set of new technologies for designing Web pages that allow new and more precise formatting features, along with faster access for users.
- **Is DHTML a new language?**  
DHTML is not a new language. DHTML is simply a snazzy name for a set of new features that recent Web browsers are equipped to interpret and use. DHTML features work only within the context of a standard HTML document.
- **How does DHTML work?**  
DHTML uses two new pieces in concert with HTML. The first is scripts that run on the user's browser, written in a scripting language such as JavaScript or VBScript. The other is Cascading Style Sheets, a new method of specifying exact styles for a Web page's



### Creating an ID style

As well as assigning styles to tags and classes in your embedded style sheets, you can define styles for element IDs. Just as each class style name begins with a period, you preface each ID style name with a number sign (#). Because you can assign an ID to only one element, defining global ID styles is no more

efficient than specifying the styles inline. However, ID styles allow you to group style information at the top of the document, rather than inline, which can help make your code less cluttered and easier to read and understand.



# Detecting Browsers

The combination of scripts and CSS allows you to add lag-free interactivity to your Web pages. Although both fourth-generation browsers support DHTML, each does so in a different way. Whereas the methods for creating basic effects in Internet Explorer and Netscape Navigator are the same, the code for most advanced DHTML features is different for each browser. This means that creating code offering dynamic features in both browser platforms, known as **cross-browser code**, often requires writing and integrating two different sets of code into a single page. Additionally, a cross-browser DHTML page requires a **browser-detection script**, which determines the user's browser brand and generation. The browser then uses this information to determine which of the page's DHTML scripts are appropriate for a user's browser. Lydia wants to add interactive DHTML features to control her FAQ page's display. Before adding the coding to create these features, she inserts a browser-detection script into her page.

## Steps 1234

### QuickTip

Because all browsers have many unique properties, there are many different ways to detect which browser a user is running. You may see different browser-detection scripts in other Web pages.

1. Open the file **HTML J-3.htm** in your text editor, then save it as a text document with the filename **FAQ browser detect.htm**  
This copy of the FAQ page contains the CSS features Lydia created in the last lesson.

2. Select the text **[replace with browser-detection script]**, then press **[Delete]**

3. Type the following script, pressing **[Enter]** at the end of each line:

```
<SCRIPT LANGUAGE="javascript">
```

```
<!--
```

```
Nav4 = (document.layers) ? 1:0;
```

```
IE4 = (document.all) ? 1:0;
```

```
//-->
```

```
</SCRIPT>
```

Lydia's completed script, shown in Figure J-7, tells the browser to check for elements of the DOM, one of which is specific to Navigator 4 and the other of which is specific to Internet Explorer 4. The question mark in each line tells the browser to evaluate the preceding condition and to assign the variable the value 1, which equals "true" if the condition is true; otherwise, assign the variable the value 0, which is "false" if it is not true. This script determines if the browser is Netscape Navigator 4 or Internet Explorer 4. Based on the results of the conditional test, the browser reads the appropriate scripts, which create DHTML features in the user's browser.

4. Check the document for errors, then make changes as necessary
5. Save **FAQ browser detect.htm** as a text document
6. Open the file **FAQ browser detect.htm** in your browser to ensure it displays correctly, and debug the file as necessary until it displays as expected

**FIGURE J-7:** Web page containing browser-detection script

Browser-detection  
script

```
<HTML>
<HEAD>
<TITLE>Nomad Ltd DHTML FAQ</TITLE>

<SCRIPT LANGUAGE="javascript">
<!--
Nav4 = (document.layers) ? 1:0;
IE4 = (document.all) ? 1:0;
//-->
</SCRIPT>

<STYLE TYPE="text/css">
<!--
H1 {font-family: arial, sans-serif; font-size: 20pt}
H2 {font-family: "times new roman", times, serif; font-size: 14pt; font-
style: italic}
.question {font-family: "times new roman", times, serif; font-size: 12pt;
font-weight: bold}
//-->
</STYLE>

</HEAD>

<BODY BACKGROUND="Egg shell.jpg">
<DIV ALIGN="center"><IMG SRC="nomad.jpg" ALIGN="right">
<H2>Frequently Asked Questions about</H2>
```



### Future cross-browser coding

Much of the difference in browser support between Navigator 4 and Internet Explorer 4 stems from the lack of a DHTML standard. As the W3C organization refines and extends the industry standard, however, future browser releases should match more closely in how they support today's basic features. Although this may make future cross-browser coding as easy as writing for a single browser today, browser-detection routines will probably never become obsolete. As long as the browsers of multiple companies are popular,

each company will continue to develop and add its own features, which will be standardized later. Additionally, some Web users will continue to use earlier-generation browsers. Because advanced scripts can hang older browsers, causing them to stop working and sometimes requiring the user to reboot, a browser-detection script can help you develop pages that identify and accommodate less-advanced browsers.



# Showing and Hiding Page Elements

By working together with embedded scripts, CSS can specify how page elements should display in different situations and in response to user actions, which allows you to create the interactive features that are the hallmark of DHTML. Lydia wants her Web page to hide the paragraphs containing the answers and to display each answer only when the user clicks its corresponding question. Lydia can create this feature, known as an **expandable outline**, with a combination of style sheets and scripts. Lydia has already inserted the code to create this feature in Navigator 4. Now, she adds code that Internet Explorer 4 can interpret.

## Steps 1234

### Trouble?

"El" stands for element. Be sure to type *E*/ or *e*/ using the letter l and not the number 1.

1. Open the file **HTML J-4.htm** in your text editor, then save it as a text document with the filename **FAQ show and hide.htm**  
Notice that this copy of the FAQ page already contains the browser detection script.
2. Scroll and select **[replace with expandIE function]**, then press **[Delete]**
3. Type the following code, pressing **[Enter]** at the end of each line

```
function expandIE(el) {  
    theEl=eval(el + "Answer");  
    if (theEl.style.display == "none") {  
        theEl.style.display="block";  
        theEl.expanded=true;  
    }  
    else {  
        theEl.style.display="none";  
        theEl.expanded=false;  
    }  
}
```

Figure J-8 shows the new code.

4. Scroll down to the <DIV> tag for the first list item "What is Dynamic HTML?", select the text **[replace with opening A tag]** and the space following it, then press **[Delete]**
5. Type **<A HREF="#" onClick="expand('one'); return false">**  
Because Lydia uses an A tag with # as a dummy href, the mouse pointer becomes a hand when it moves over the question which indicates to the user that clicking the text triggers an action. The remaining code uses the onClick event handler to call the function expand and specifies the variable 'one' for the function to process. The function expand checks which browser the user is running and, in Internet Explorer 4, calls the expandIE function you entered earlier.
6. Replace the text **[replace with closing A tag]** in the next line with **</A>**
7. Repeat Steps 4 through 6 for the remaining six list items, substituting **'two'** for 'one' in item two, and so forth  
Figure J-9 shows a portion of the completed code for the expanding FAQ list.
8. Use Figures J-8 and J-9 to check the document for errors, make changes as necessary, then save FAQ show and hide.htm as a text document

### Trouble?

In Navigator 4, all the text is visible briefly when the page opens.

9. Open **FAQ show and hide.htm** in your browser, then click the first question  
As Figure J-10 shows, the text for the first question is displayed.

FIGURE J-8: FAQ page with added script

```
function expand(e1) {
    if (!ver4) return;
    if (IE4) {
        expandIE(e1)
    }
    else {
        expandNav(e1)
    }
}

function expandIE(e1) {
    theEl=eval(e1 + "Answer");
    if (theEl.style.display == "none") {
        theEl.style.display="block";
        theEl.expanded=true;
    }
    else {
        theEl.style.display="none";
        theEl.expanded=false;
    }
}

function expandNav(e1) {
    theEl=eval("document." + e1 + "Answer");
    if (theEl.visibility == "hide") {
```

Script to make outline expandable in IE4

Change value of display property for a clicked line

FIGURE J-9: <A> tags added to list items

```
<H3>Click any of the popular questions about DHTML below to see its
answer.</H3>

<DIV ID="oneQuestion" CLASS="question"><A HREF="#" onClick="expand('one');
return false"><P>What is Dynamic HTML?</P></A></DIV>

<DIV ID="oneAnswer" CLASS="answer"><P>Dynamic HTML (DHTML) describes a set
of new technologies for designing Web pages that allow new and more precise
formatting features, along with faster access for users.</P></DIV>

<DIV ID="twoQuestion" CLASS="question"><A HREF="#" onClick="expand('two');
return false"><P>Is DHTML a new language?</P></A></DIV>

<DIV ID="twoAnswer" CLASS="answer"><P>DHTML is not a new language. DHTML is
simply a snazzy name for a set of new features that recent Web browsers are
equipped to interpret and use. DHTML features work only within the context
of a standard HTML document.</P></DIV>

<DIV ID="threeQuestion" CLASS="question"><A HREF="#"
onClick="expand('three'); return false"><P>How does DHTML
work?</P></A></DIV>

<DIV ID="threeAnswer" CLASS="answer"><P>DHTML uses two new pieces in concert
with HTML. The first is scripts that run on the user's browser, written in a
scripting language such as JavaScript or VBScript. The other is Cascading
```

Opening <A> tag and event handler inserted

Closing </A> tag inserted

FIGURE J-10: Expanding FAQ list

Mouse pointer becomes hand over question text

Clicking question displays answer text

*Frequently Asked Questions about*

**Nomad Ltd**

**Dynamic HTML (DHTML)**

Click any of the popular questions about DHTML below to see its answer.

**What is Dynamic HTML?**


Dynamic HTML (DHTML) describes a set of new technologies for designing Web pages that allow new and more precise formatting features, along with faster access for users.

**Is DHTML a new language?**

**How does DHTML work?**

**What can I do with DHTML?**

# Changing Font Size Dynamically

In the last lesson, you used a script to modify the style of an element in response to a user action. Using this general formula, you can add dynamic formatting to most style aspects of any object on your Web pages. A popular application of this method has been to change the appearance of text when a user points at it, commonly referred to as a **rollover**. A rollover changes text attributes to make the text stand out.  Lydia wants to change the text size of the FAQ questions when the user moves the pointer over them. Although adding this feature to graphics is straightforward in both browsers, Lydia finds that it is difficult to create for text blocks in Navigator. Because the feature is not crucial to the overall layout of her Web page, she decides to focus on creating the feature only in Internet Explorer.

## Steps 1234

1. Open the file **HTML J-5.htm** in your text editor, then save it as a text document with the filename **FAQ text size.htm**
2. Scroll down the document to the ending `</SCRIPT>` tag in the document's head section, select the text **[replace with text size functions]**, press **[Delete]**, then type the following functions, pressing **[Enter]** at the end of each line
 

```
function changeText(whichQuestion) {
    if (Nav4) {return}
    whichQuestion.style.fontSize="16pt";
}
function changeTextBack(whichQuestion) {
    if (Nav4) {return}
    whichQuestion.style.fontSize="12pt";
}
```

Figure J-11 shows the functions entered into the Web page source. The first function, `changeText`, changes the font size of the object from which it was called to 16 point. The second function, `changeTextBack`, changes the font size of the calling object back to 12 point.

3. Scroll down the page to the opening `<A>` tag for the first list item "What is Dynamic HTML?", select the text **[replace with event handlers]**, then press **[Delete]**
4. Type **`onMouseOver="changeText(this)" onMouseOut="changeTextBack(this)"`**  
 This code adds two new arguments to the heading. The first uses the `onMouseOver` event handler to call the `changeText` function you created earlier. The "this" is scripting shorthand to tell the function to make changes to the current object. The second argument calls the `changeTextBack` function for the current object in response to the mouse moving off the text.
5. Repeat Steps 3 and 4 for the remaining six list items  
 Figure J-12 shows source code containing the inline code for dynamically changing text size.
6. Use Figures J-11 and J-12 to check the document for errors, make changes as necessary, then save **FAQ text size.htm** as a text document
7. Open **FAQ text size.htm** in your browser, then move the pointer over a list item  
 Figure J-13 shows the result of this step in Internet Explorer 4. Notice that the text size of the heading increased. However, if you opened **FAQ text size.htm** in a different browser, such as Netscape Navigator 4, no change occurs.
8. Move the mouse pointer off the first heading  
 The first heading returns to its original size.

FIGURE J-11: Page containing new functions

Changes current text to larger font size

```
function changeText(whichQuestion) {  
    if (Nav4) {return}  
    whichQuestion.style.fontSize="16pt";  
}
```

Changes larger text back to smaller font size

```
function changeTextBack(whichQuestion) {  
    if (Nav4) {return}  
    whichQuestion.style.fontSize="12pt";  
}  
//-->  
</SCRIPT>
```

FIGURE J-12: Page containing code to change text size

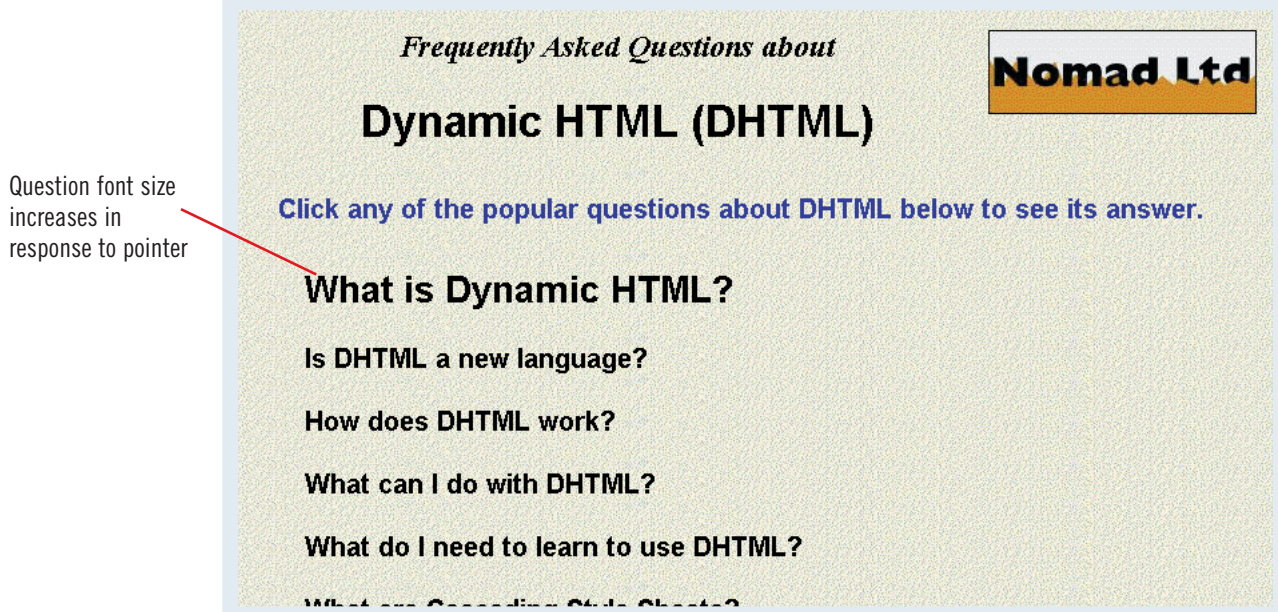
Calls function to increase text size

```
<H3>Click any of the popular questions about DHTML below to see its  
answer.</H3>  
  
<DIV ID="oneQuestion" CLASS="question" ><A HREF="#" onClick="expand('one');  
return false" onMouseOver="changeText(this)"  
onMouseOut="changeTextBack(this)"><P>What is Dynamic HTML?</P></A></DIV>
```

Calls function to decrease text size


```
<DIV ID="oneAnswer" CLASS="answer"><P>Dynamic HTML (DHTML) describes a set  
of new technologies for designing Web pages that allow new and more precise  
formatting features, along with faster access for users.</P></DIV>  
  
<DIV ID="twoQuestion" CLASS="question" ><A HREF="#" onClick="expand('two');  
return false" onMouseOver="changeText(this)"  
onMouseOut="changeTextBack(this)"><P>Is DHTML a new language?</P></A></DIV>  
  
<DIV ID="twoAnswer" CLASS="answer"><P>DHTML is not a new language. DHTML is  
simply a snazzy name for a set of new features that recent Web browsers are  
equipped to interpret and use. DHTML features work only within the context  
of a standard HTML document.</P></DIV>  
  
<DIV ID="threeQuestion" CLASS="question"><A HREF="#"  
onClick="expand('three'); return false" onMouseOver="changeText(this)"  
onMouseOut="changeTextBack(this)"><P>How does DHTML work?</P></A></DIV>  
  
<DIV ID="threeAnswer" CLASS="answer"><P>DHTML uses two new pieces in concert
```

FIGURE J-13: Changed text size in Internet Explorer 4





# Changing Font Color Dynamically

Just as you can script a page to change text size in response to a user action, you can easily change or modify such scripts to change several other properties that control how text displays.  In addition to the increase in text size, Lydia wants the heading font color to change in response to mouse pointing. She can modify the scripts she already created to alter font color at the same time they alter text size in Internet Explorer 4.

## Steps 1234

1. Open the file **HTML J-6.htm** in your text editor, then save it as a text document with the filename **FAQ text color.htm**
2. Scroll down the page to the `changeText` function in the page header, select the text **[replace with changeText color]**, then press **[Delete]**
3. Type **`whichQuestion.style.color="#9400D3";`**
4. Select the text **[replace with changeTextBack color]** in the `changeTextBack` function in the page header, then press **[Delete]**
5. Type **`whichQuestion.style.color="#000000";`**  
Figure J-14 shows the completed changes in the Web page source containing the color style. The `changeText` function increases the size of the text as well as changes the color for the selected object. The `changeTextBack` function returns the text to its original size and color.
6. Check the document for errors, make changes as necessary, then save **FAQ text color.htm** as a text document
7. Open the file **FAQ text color.htm** in your browser, then move the pointer over the first heading  
Figure J-15 shows the change, which again takes place only in Internet Explorer 4. In addition to the size increase, the text turns purple, making it stand out from the other questions on the page.
8. Move the mouse pointer off the first heading  
In Internet Explorer 4, the text size and color return to their default settings.

FIGURE J-14: Color change code inserted

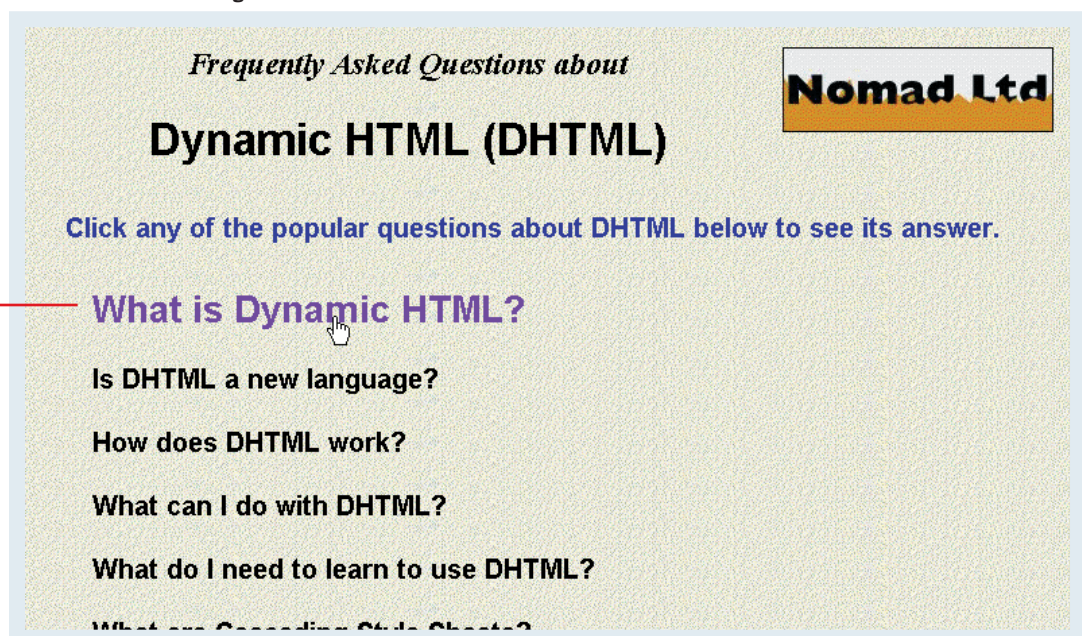
New script lines to  
change text color

```
function changeText(whichQuestion) {
    if (Nav4) {return}
    whichQuestion.style.fontSize="16pt";
    whichQuestion.style.color="#9400D3";
}
function changeTextBack(whichQuestion) {
    if (Nav4) {return}
    whichQuestion.style.fontSize="12pt";
    whichQuestion.style.color="#000000";
}
//-->
</SCRIPT>

<STYLE TYPE="text/css">
<!--
H1 {font-family: arial, sans-serif; font-size: 20pt; font-style: normal}
H2 {font-family: "times new roman", times, serif; font-size: 14pt; font-
style: italic}
H3 {font-family: arial; font-size: 12pt; color: #4619E1; position: relative;
left: 20px; top: -10px}
.question {font-family: "times new roman", times, serif; font-size: 12pt;
font-weight: bold}
.question A {font-family: arial; font-size: 12pt; font-weight: bold; text-
decoration: none; color: black}
.rest {position: absolute; left: 25px}
```

FIGURE J-15: Color change in browser

Changed text color





# Using an External Style Sheet

When you create or manage a group of related Web pages, it is often helpful to create an external style sheet. Just as you use hyperlinks to refer to external HTML documents, you can link each Web page to the style sheet with a simple line of code. Creating an external style sheet allows you to apply a standard style to a set of Web pages and to easily make changes that apply to all the pages. Because Lydia plans to create other FAQ pages for her department, she has created an external style sheet to reflect the styles she wants all the FAQs to use. She also takes into account Nomad Ltd's standard Web page style. She replaces the existing embedded style sheet with a link to the external file. The rules of cascading precedence allow her to leave in place the inline styles that help individualize the Web page by creating her dynamic effects.

## Steps 1234

### QuickTip

Both fourth-generation browsers ignore the highest-level heading definition in an external style sheet. Adding an empty style definition named H0 guarantees that all other heading definitions will display correctly in your documents.

1. Open the file **HTML J-7.css**, then save it as a text document with the filename **nomadltd.css**

This file contains the Nomad Ltd stylesheet. The document consists of text, just like an HTML document, and contains the opening and closing `<STYLE>` tags that tell browsers how to interpret the contents. A CSS document is formatted just like an embedded style sheet, except that it contains no HTML code outside of the `<STYLE>` tags. Lydia cut and pasted the styles from her FAQ page that she will apply to other pages she creates.

2. Select the text **#4619E1** in the color definition for the H3 heading, press [Delete], then type **#238E68**

This changes the color for the H3 style, which applies to the directions in Lydia's current page, from blue to green.

3. Save **nomadltd.css** as a text document

4. Open the file **HTML J-8.htm** in your text editor, then save it as a text document with the filename **FAQ external style.htm**

Lydia has removed the heading definitions from the embedded style sheet for her FAQ page because the external style sheet contains these specifications.

5. Scroll down and select **[replace with external style sheet link]** which is just above the embedded style sheet, then press [Delete]

6. Type **<LINK REL="stylesheet" HREF="nomadltd.css" TYPE="text/css">**

Figure J-16 shows the page source containing the insertion. The LINK tag contains information about a file related to the current document. The REL attribute identifies the file type of the related file. The value assigned to HREF is the name and address of the file, just as for a hyperlink. TYPE specifies the format of the associated file because you can code associated information including style sheets in different ways.

7. Check the file for errors, make changes as necessary, then save **FAQ external style.htm** as a text document

8. Open the file **FAQ external style.htm** in your Web browser

The Web page appears as shown in Figure J-17. Because both Navigator 4 and Internet Explorer 4 support basic CSS, the standardized Nomad Ltd format appears in both browsers. The instruction text color displays in green, which confirms that the page is using the external styles you defined. When Lydia links other FAQ Web pages to this **nomadltd.css** file as she develops them, then all her FAQ Web pages will have the same style. This helps ensure consistency for all her FAQ Web pages.

FIGURE J-16: Web page code containing link to external style sheet

External style sheet  
link text

```
}
//-->
</SCRIPT>

<LINK REL="stylesheet" HREF="nomadltd.css" TYPE="text/css">

<STYLE TYPE="text/css">
<!--
.question {font-family: "times new roman", times, serif; font-size: 12pt;
font-weight: bold}
.question A {font-family: arial; font-size: 12pt; font-weight: bold; text-
decoration: none; color: black}
.rest {position: absolute; left: 25px}
//-->
</STYLE>

</HEAD>

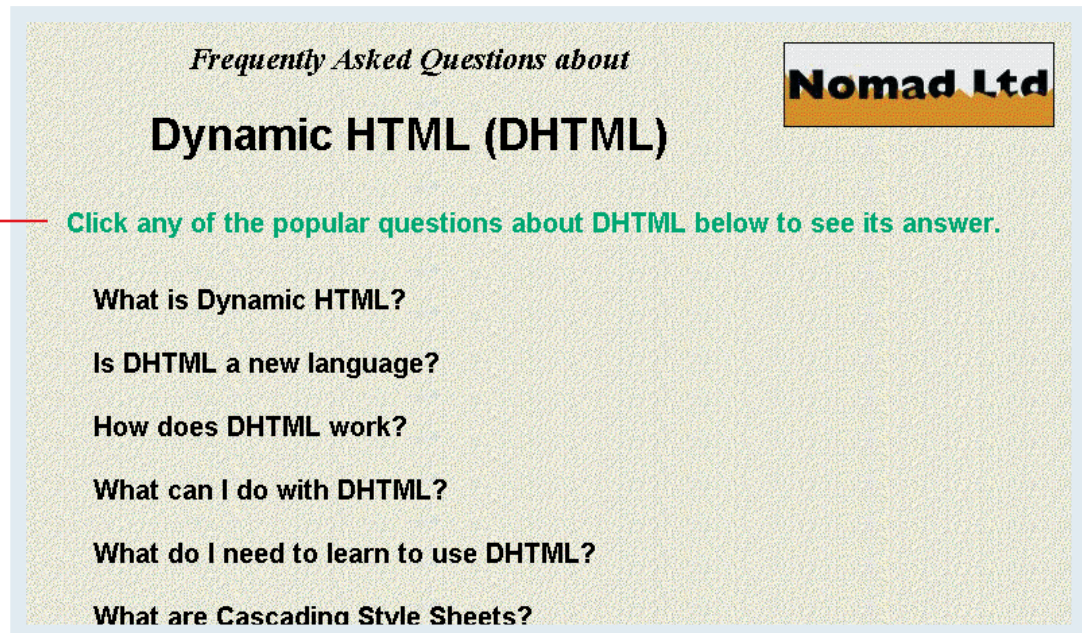
<BODY BACKGROUND="Egg shell.jpg">

<DIV ALIGN="center"><IMG SRC="nomad.jpg" ALIGN="right">
<H2>Frequently Asked Questions about</H2>
<H1>Dynamic HTML (DHTML)</H1></DIV><BR>

<H3>Click any of the popular questions about DHTML below to see its
answer.</H3>
```

FIGURE J-17: Web page linked to external style sheet

Text color reflects  
change made to  
external style sheet



## ► Concepts Review

Label each DHTML item marked in Figure J-18.

FIGURE J-18

```

1  <LINK REL="stylesheet" HREF="nomadltd.css" TYPE="text/css">

  <SCRIPT LANGUAGE="JavaScript">
  <!--
2  NS4 = (document.layers) ? 1:0;
  IE4 = (document.all) ? 1:0;
  //-->
  </SCRIPT>

3  <STYLE TYPE="text/css">
  <!--
  H1 {font-family: arial, sans-serif; font-size: 20pt}
  H2 {font-family: "times new roman", times, serif; font-size: 14pt; font-
4  style: italic}
  .question {font-family: "times new roman", times, serif; font-size: 12pt;
  font-weight: bold}
  //-->
  </STYLE>

  </HEAD>

5  <BODY BACKGROUND="Egg shell.jpg">
  <DIV STYLE="font-color: navy; text-decoration:underline" ALIGN="center">
  <H2>Frequently Asked Questions about</H2>
  <H1>Dynamic HTML (DHTML)</H1></DIV>

```

Match each term with its description.

- |                   |                                                                 |
|-------------------|-----------------------------------------------------------------|
| 6. Inline style   | a. System of precedence among style-sheet levels                |
| 7. Embedded style | b. Style associated with tags in Web page header                |
| 8. External style | c. Style specified in local occurrence of tag                   |
| 9. Cascading      | d. Named set of style specifications created as a tag attribute |
| 10. Class         | e. Style specified in separate linked document                  |

Select the best answer from the list of choices.

11. The most efficient method for assigning style to several text blocks marked with the same tag on one Web page is
  - a. Inline style.
  - b. Embedded style.
  - c. External style.
  - d. Linked style.
12. Embedded style sheets begin and end with which tagset?
  - a. <SCRIPT> .. </SCRIPT>
  - b. <STYLE> .. </STYLE>
  - c. <STYLESHEET> .. </STYLESHEET>
  - d. <CSS> .. </CSS>

**13. A browser-detection script**

- a. Makes your page's DHTML features viewable with any browser.
- b. Tells the user's browser which version of HTML your page uses.
- c. Tells the user's browser which version of JavaScript your page uses.
- d. Determines and stores the user's browser brand and generation.

**14. Which HTML tags does an external style sheet contain?**

- a. An external style sheet contains no HTML tags.
- b. `<SCRIPT> .. </SCRIPT>`
- c. `<STYLE> .. </STYLE>`
- d. `<SCRIPT> .. </SCRIPT>` and `<STYLE> .. </STYLE>`

**15. Which HTML tag do you use to associate an external style sheet with a Web page?**

- a. `<LINK>`
- b. `<A>`
- c. `<CSS>`
- d. `<STYLE>`

## ► Skills Review

**1. Create an embedded style sheet.**

- a. Open the file HTML J-9.htm, then save it as a text document with the filename Tours FAQ embedded style.htm.
- b. Select the text [replace with embedded style sheet], press [Delete], type `<STYLE TYPE="text/css">`, press [Enter], then type `<!--` and press [Enter].
- c. Type `H1 {font-family: "comic sans ms", arial, sans-serif; font-size: 20pt}` and press [Enter].
- d. Type `H2 {font-family: "times new roman", times, bookman, serif; font-size: 16pt; font-style: italic}` and press [Enter].
- e. Type `//-->` and press [Enter], then type `</STYLE>`.
- f. Check the document for errors, make changes as necessary, then save Tours FAQ embedded style.htm as a text document.
- g. Open your Web browser, then open Tours FAQ embedded style.htm to view the Web page.

**2. Create a class.**

- a. Open the file HTML J-10.htm in your text editor, then save it as a text document with the filename Tours FAQ class.htm.
- b. Select the text [replace with class style] in the embedded style sheet, then press [Delete].
- c. Type `.title {font-family: garamond, arial, helvetica, sans-serif; font-size: 16pt; font-weight: bold}`.
- d. Select the text [replace with class] in the `<DIV>` tag for the first bulleted list item, then press [Delete].
- e. Type `CLASS="title"`.
- f. Repeat Steps d and e for the remaining two bulleted titles.
- g. Check the document for errors, make changes as necessary, then save Tours FAQ class.htm as a text document.
- h. Open Tours FAQ class.htm in your browser, then view the document.

**3. Detect browsers.**

- a. Open the file HTML J-11.htm in your text editor, then save it as a text document with the filename Tours FAQ browser detect.htm.
- b. Select the text [replace with browser detection script], then press [Delete].

- c. Type the following script, pressing [Enter] at the end of each line:  

```
<SCRIPT LANGUAGE="javascript">
<!--
NS4 = (document.layers) ? 1:0;
E4 = (document.all) ? 1:0;
//-->
</SCRIPT>
```
- d. Check the document for errors, then make changes as necessary.
- e. Save Tours FAQ browser detect.htm as a text document.
- f. Open Tours FAQ browser detect.htm in your browser, then debug if necessary.

#### 4. Show and hide page elements.

- a. Open the file HTML J-12.htm in your text editor, then save it as a text document with the filename Tours FAQ show and hide.htm.
- b. Scroll down and select the text [replace with expandE function], then press [Delete].
- c. Type the following code, pressing [Enter] at the end of each line  

```
function expandE(el) {
    theEl=eval(el + "ExpI");
    if (theEl.style.display == "none") {
        theEl.style.display="block";
        theEl.expanded=true;
    }
    else {
        theEl.style.display="none";
        theEl.expanded=false;
    }
}
```
- d. Scroll down to the <DIV> tag for the first list item "Athlete", select the text [replace with opening A tag] and the space following it, then press [Delete].
- e. Type <A HREF="#" onClick="expand('one'); return false">
- f. Replace the text [replace with closing A tag] on the next line with </A>.
- g. Repeat Steps d through f for the remaining two tour titles, substituting 'two' for 'one' in item two, and so forth.
- h. Check the document for errors, making changes as necessary, then save Tours FAQ show and hide.htm as a text document.
- i. Open Tours FAQ show and hide.htm in your browser, then click the first title "Athlete".

#### 5. Change font size dynamically.

- a. Open the file HTML J-13.htm in your text editor, then save it as a text document with the filename Tours FAQ text size.htm.
- b. Scroll down the page, select the text [replace with text size functions], press [Delete], then type the following functions, pressing [Enter] at the end of each line  

```
function changeText(whichTitle) {
    if (Nav4) {return}
    whichTitle.style.fontSize="24pt";
}
function changeTextBack(whichTitle) {
    if (Nav4) {return}
```

```
whichTitle.style.fontSize="12pt";
}
```

- c. Scroll down the page to select the text [replace with event handlers] in the opening <A> tag for the first tour title "Athlete", then press [Delete].
  - d. Type `onMouseOver="changeText(this)" onMouseOut="changeTextBack(this)"`.
  - e. Repeat Steps c and d for the remaining two list items.
  - f. Check the document for errors, make changes as necessary, then save Tours FAQ text size.htm as a text document.
  - g. Open the file Tours FAQ text size.htm in your browser, then move the pointer over the first heading.
- 6. Control font color dynamically.**
- a. Open the file HTML J-14.htm in your text editor, then save it as a text document with the filename Tours FAQ text color.htm.
  - b. Select the text [replace with changeText color] in the changeText function in the page header, then press [Delete].
  - c. Type `whichTitle.style.color="#236B8E";`
  - d. Select the text [replace with changeTextBack color] in the changeTextBack function in the page header, then press [Delete].
  - e. Type `whichTitle.style.color="#000000";`
  - f. Check the document for errors, making changes as necessary, then save Tours FAQ text color.htm as a text document.
  - g. Open the file Tours FAQ text color.htm in your browser, then move the pointer over the first heading.
- 7. Use an external style sheet.**
- a. Open the file HTML J-15.htm, then save it as a text document with the filename Tours FAQ external style.htm.
  - b. Scroll down the page, select the text [replace with LINK tag] before the opening <STYLE> tag, then press [Delete].
  - c. Type `<LINK REL="stylesheet" HREF="nomadltd.css" TYPE="text/css">`.
  - d. Check the file for errors, make changes as necessary, then save Tours FAQ external style.htm as a text document.
  - e. Open the file FAQ external style.htm in your Web browser and notice the green color added to the instruction text.

## ► Independent Challenges

**1.** As you update and expand the Sandhills Regional Public Transit Web site, you decide to incorporate DHTML features into your pages. Currently, you are working to make a page on rider tips more interactive and easier to read. You decide to add dynamic size and color to the items on this page.

To complete this independent challenge:

- a. Open the file HTML J-16.htm in your text editor, then save it as a text document with the filename SRPT rider tips.htm.
- b. Select the text [replace with style sheet link] in the head section, press [Delete], then type `<LINK REL=stylesheet HREF="HTML J-17.css" TYPE="text/css">` and save SRPT rider tips.htm as a text document.
- c. Select the text [replace with script], press [Delete], and type the following script, pressing [Enter] at the end of each line.
 

```
<SCRIPT LANGUAGE="javascript">
<!--
Nav4 = (document.layers) ? 1:0;
IE4 = (document.all) ? 1:0;
```

```
function changeText(whichTitle) {
```

```

        if (Nav4) {return}
        whichTitle.style.fontSize="24pt";
        whichTitle.style.color="#FF6347"
    }

    function changeTextBack(whichTitle) {
        if (Nav4) {return}
        whichTitle.style.fontSize="16pt";
        whichTitle.style.color="#000000";
    }

    //-->
</SCRIPT>

```

- d. Select the text [replace with event handlers] in the opening <DIV> tag for each of the five tips, press [Delete], then type `onMouseOver="changeText(this)" onMouseOut="changeTextBack(this)"`
- e. Save SRPT rider tips.htm as a text document.
- f. Start your browser, cancel any dial-up activities, open SRPT rider tips.htm, then move the cursor over the tips to verify that they change color and increase in font size.  
*Note:* This change will only be noticeable if you are using Internet Explorer 4.
- g. If necessary, edit the code in your text editor until the DHTML features work in IE4, and save SRPT rider tips.htm as a text file.

**2.** While reorganizing the Community Public School Volunteers Web publication, you decide that the pages should have a uniform style. You think the easiest way to create and apply this style would be to make an external style sheet and link each page to it.

To complete this independent challenge:

- a. Open the file HTML J-18.htm in your text editor, then save it as a text document with the filename CPSV home.htm.
- b. Select the text of the embedded style sheet in the head section, including the opening and closing <STYLE> tags, then copy it to the Clipboard.
- c. Open a new text file in your text editor, paste the style sheet from the Clipboard into it, then save this file as a text document with the name CPSV style.css.
- d. Reopen CPSV home.htm in your text editor, delete the embedded style sheet from the head section, replace it with `<LINK REL=stylesheet HREF="CPSV style.css" TYPE="text/css">` and save CPSV home.htm as a text document.
- e. Open CPSV home.htm in your Web browser and notice the formatting created by the external style sheet.
- f. If necessary, use your text editor to edit and save your document until it displays correctly.

**3.** The Green House plant store's most heavily viewed Web page lists popular items available at the store, along with descriptions and prices. The owners would like you to add DHTML features to this page. You decide to convert the list to an expanding outline.

To complete this independent challenge:

- a. Open the file HTML J-19.htm in your text editor, then save it as a text document with the filename Green House supplies.htm.
- b. Select the text [replace with LINK tag], press [Delete], then type `<LINK REL="stylesheet" HREF="HTML J-20.css" TYPE="text/css">` and save Green House supplies.htm as a text document.
- c. Select the text [replace with script], press [Delete], then type the following script, pressing [Enter] at the end of each line
 

```

Nav4 = (document.layers) ? 1:0;
IE4 = (document.all) ? 1:0;

```

```

ver4 =(Nav4 || IE4)?1:0;

function expandE(el) {
    theEl=eval(el + "Desc");
    if (theEl.style.display == "none") {
        theEl.style.display="block";
        theEl.expanded=true;
    }
    else {
        theEl.style.display="none";
        theEl.expanded=false;
    }
}

function changeText(whichProduct) {
    if (Nav4) {return}
    whichProduct.style.fontSize="24pt";
    whichProduct.style.color="#215E21";
}

function changeTextBack(whichProduct) {
    if (Nav4) {return}
    whichProduct.style.fontSize="14pt";
    whichProduct.style.color="#000000";
}

```

- d. In the <DIV> tag for the first product name, Potting soil, select the text [replace with opening A tag], press [Delete], then type <A HREF="#" onClick="expand('one'); return false"; onMouseOver="changeText(this)" onMouseOut="changeTextBack(this)">
- e. Replace the text [replace with closing A tag] on the next line with </A>.
- f. Repeat Steps d and e for the remaining four product names, replacing 'one' with 'two' for the second item, and so forth, then save Green House supplies.htm as a text document.
- g. Open your browser, open Green House supplies.htm, then move the cursor over a heading and click it.  
*Note:* The text size and color events work only in Internet Explorer 4.
- h. If necessary, edit the code in your text editor until the expanding outline works and the text size and color changes work in IE4, then save Green House supplies.htm as a text document.



**4.** Even though it's complicated, many Web page designers have created cross-browser code to create text-rollover effects in both major fourth-generation browsers. To complete this independent challenge, open a search engine and search on one or more keywords, such as DHTML, cross-browser, or rollover. Using the results from the search engine, open and investigate Web sites that provide tutorials or articles on creating DHTML to find a sample of cross-browser text-rollover code. Print the code, along with any accompanying explanation. After reading the article and scanning the code, make a list on a separate sheet of paper of the compromises the designer found necessary when creating the code. Count the number of code lines necessary to create this feature and, if possible, total those used exclusively by each browser. Submit your printouts and your list to your instructor.

## ► Visual Workshop

Add the dynamic size and color features shown in Figure J-19 to each of the five bulleted items in the file HTML J-21.htm. Open HTML J-21 in your text editor, then save it as a text document with the filename Books.htm. Use the script listed in Independent Challenge 1, Step 3 in the page's head section. Use the code from Independent Challenge 1, Step C, in the opening <DIV> tags for the elements that will change color and size. Substitute the color #8E2323 (firebrick), or another color of your choice, to provide contrast to the background.

FIGURE J-19

